Case Report

Chronic Subdural Hematoma Caused By Soccer Ball Trauma Associated With Arachnoid Cyst in Childhood: Case Report

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Abstract

Soccer is a popular sport all around the world and it's unique that the head purposefully used to strike the ball (heading). There are many soccer related injury reports but rare for heading. Chronic subdural hematomas generally occur in elderly patients with a history of mild head trauma. It is very rare in childhood. Intracranial arachnoid cysts are benign, developmental anomalies and often diagnosed in childhood as incidental finding. We present a 13 year-old male patient with chronic subdural hematoma caused by a soccer ball trauma association with ipsilateral arachnoid cyst.

Keywords: Chronic subdural hematoma, arachnoid cyst, soccer, head injury

INTRODUCTION

Soccer is a popular sport all around the world. Many people interested in soccer either spectators or players. Although soccer is a unique sport where the head is purposefully used to strike the ball, soccer ball related head injuries are very rare in the literature⁹¹². Chronic subdural hematomas generally occur in elderly patients with a history of mild head trauma. It is rare in childhood and has some provoking factors like intracranial arachnoid cysts, anticoagulant drug usage, ventriculo-peritoneal shunts and coagulopaties³⁶¹²¹³¹⁴. Arachnoid cysts generally occur in children. They are benign, developmental anomalies and diagnosed as an incidental finding. They have been observed to be related to a higher risk of acute or chronic subdural hematomas even in childhood³⁴⁵¹⁰¹¹¹²¹⁶. Here we report a case of 13 year-old male patient with an arachnoid cyst who sustained a chronic subdural hematoma...
because of striking a ball to his head while playing football with his friends.

**CASE PRESENTATION**

A 13 year-old male patient admitted to the emergency department with complaints of headache and vomiting for a month. Past history revealed that, a ball struck his head a month ago while he was playing football with his friends. After that he had a headache, and over the last 2-3 days he had increasing headaches and vomiting. His physical and neurological examinations were normal. He was alert and oriented. A cranial computed tomography (CT) scan was performed. CT scan revealed a left middle fossa arachnoid cyst and also an ipsilateral fronto-parietal chronic subdural hematoma with midline shift (Figure 1,2). The patient underwent burr-hole drainage on the day of his admission. The evacuated fluid had the typical appearance of ‘motor-oil’, as it is in chronic subdural hematoma. His post-operative course was uneventful and the patient was discharged from the hospital on postoperative day 5. During six month follow-up his neurological condition was very good and a cranial Magnetic Resonance Imaging (MRI) scan revealed complete resolution of the chronic subdural hematoma and no changes of the arachnoid cyst (Figure 3,4).
DISCUSSION

Soccer is typically played with the lower extremities and the rules of the game forbid the use of the upper extremities so related injuries generally occur at the lower extremities. However, it is the only sport that uses the head to strike the ball. During a soccer game, players head the ball many times. Although heading as a cause of brain injury is controversial, it is reported that while heading is unlikely to cause injury, head-to-head contact might (1,9,12). There are reports in the literature about soccer related head injuries, but we found very few, regarding chronic subdural hematoma associated with arachnoid cyst in childhood, because of heading, as was the situation with our case (4,8,12).

Chronic subdural hematomas usually occur in elderly patients with a history of mild trauma. This entity is very rare in childhood. But the presence of some pathological conditions like intracranial arachnoid cysts, coagulopathies, anticoagulant drug usage, ventriculoperitoneal shunt may easily provoke chronic subdural hematoma (3,13,16). Subdural or chronic subdural hematomas associated with arachnoid cyst can occur because of any kind of collision, for example in hits between the players' heads while playing football or other sports (2,4,8,12,13,14).

Intracranial arachnoid cysts generally arise from a developmental aberration involving duplication or splitting of the arachnoid membrane and they contain cerebrospinal fluid with normal biochemical and cellular contact (3,4,11,12). They are benign anomalies and generally occur in children (75 %), have a male-to-female ratio of 3:4:1 and account for 1 % of intracranial masses and are located at the middle cranial fossa (50-60 %), and on the left side (3,4,7,10,15,16). In our case, the patient was 13 year-old male, his arachnoid cyst was located at the middle cranial fossa and on the left side, similar with the literature.

Intracranial arachnoid cysts are often asymptomatic and they are detected incidentally on imaging studies because of unrelated symptom evaluations, such as headache, dizziness, vomiting. However, they may progressively enlarge and exert a mass effect on adjacent neural structures (12,16). The most common symptoms are increased intracranial pressure, craniomegaly, seizures, psychomotor retardation and focal neurological deficits (3,10,16).

Intracranial arachnoid cysts may be associated with intracystic, acute subdural, chronic subdural or subarachnoid hemorrhage. But the risk of these hemorrhagic complications is reported in literature at less than 0,1 % (7,11,16). There are many hypotheses to explain the occurrence of chronic subdural hematoma associated with arachnoid cyst. Hemorrhages with arachnoid cysts can occur spontaneously or because of trauma that leads to rupture of veins around the arachnoid cyst or it can be seen during the rupture of an arachnoid cyst because of a head trauma and forms a hygroma than transforms a hematoma. An other hypothesis is about the different composition of an arachnoid cyst.

Figure 4: MRI scan showing complete resolution of chronic subdural hematoma
compared to cerebrospinal fluid, so that pressure may be transferred more readily and lead to rupture of the bridging veins or the vessels of the cyst wall\(^3,4,8,11\).

The presence of an arachnoid cyst is a risk factor for intracranial bleeding like chronic subdural hematoma in people who play in contact sports. We conclude that, physicians and also neurosurgeons must be especially aware of sports related minor trauma even in young patients, admitting to emergency departments with symptoms of increased intracranial pressure.

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**REFERENCES**


